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TREATISE  
ON THE  
NATURAL SMALL POX,

WITH SOME  
REMARKS AND OBSERVATIONS

ON

INOCULATION.

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By CHARLES ROE, *K.*  
MEMBER OF THE CORPORATION OF SURGEONS.

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THE ARTS

ON THE

NATURAL SMALL POX,

WITH SOME



IN OCULAT ION.

BY CHARLES ROY,  
MEMBER OF THE CORPORATION OF LONDON.

PRINTED BY J. DAWKINS, AT THE MUSEUM, CHANCERY LANE, LONDON.

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T O

PERCIVAL POTT, Esq; F. R. S.

AND SENIOR SURGEON TO

SAINT BARTHOLOMEW'S HOSPITAL,

THE FOLLOWING SHEETS ARE

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A

T R E A T I S E

ON THE

S M A L L P O X.

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C H A P. I.

*Containing a DESCRIPTION of the different  
SPECIES of the SMALL POX.*

**T**HE Small Pox appears with so many  
different degrees of violence in  
different subjects, that authors have  
been obliged to divide the disease into several  
species, in order to distinguish it with  
greater certainty and precision. Some, in  
B forming



forming their divisions, have been entirely guided by the appearance of the pustules; others by their number.

THE famous SYDENHAM divides the disease only into *Distinct* and *Confluent*; and since his time, most authors have followed his example. But this distinction seems rather too general to express all the varieties of the disease, in different seasons and constitutions: However, as it is established by the authority of so great a man, I shall retain it, and consider the members of it, as two general heads or classes; under which, I shall reduce all the different species of Small Pox which have been hitherto taken notice of by any author of repute, or have fallen under my own observation. By this method, I flatter myself, the young practitioner will be enabled to form a more just idea of the disease, than he could by consulting the several authors who have written on each species.

UNDER

UNDER the *Distinct Genus*, I shall place

1. The Benign.
2. The Cryſtalline.
3. The Coherent.
4. The Warty.
5. The Sanguineous.

THE *Confluent* will compriſe

1. The Mild.
2. The Eryſipelatous.
3. The Cryſtalline.
4. The Siliquoſe; and
5. The Nervous.

## S E C T. I.

### *Of the* BENIGN SMALL POX.

THIS ſpecies, at the beginning, has all the ſymptoms of an inflammatory fever, ſuch as cold chills, hot ſkin, a frequent, full and hard pulſe (unleſs the diſeaſe be very mild, in which caſe, the pulſe feels rather ſoft,) a white tongue, and a fizy appearance of the blood, if drawn from a vein, upon the firſt or ſecond day of the at-

tack. The patient complains of thirst, loss of appetite, costiveness, pain in the head and back, sickness at the stomach, nausea and vomiting: This last symptom generally comes a little before the eruption, which is for the most part accompanied with sweat.

CONVULSIONS sometimes precede the eruption in children, especially those who were subject to them before; but they are by no means to be considered as an unfavorable symptom.

THE principal signs which distinguish the *Eruptive Fever* from most other kinds of fever, are a peculiar disagreeable smell of the breath, frequent sneezing, paleness, and sometimes a sudden glow of one or both cheeks, oppression and anxiety about the præcordia, soreness at the pit of the stomach when pressed with the finger, a heavy look, and disposition to sleep; which last symptom



tom is more remarkable in children than in adults.

THIS fever increases towards evening, and comes to its height about 11 or 12 o'clock at night, and remits towards 5 or 6 in the morning.—On the third or fourth day, about the usual time of remission, a few pustules make their appearance on the face or breast, accompanied for the most part with a breathing sweat.

AFTER the next evening's paroxysm, or hot fit, several more come out, by which the patient is much relieved; and the third or fourth paroxysm, reckoning from the first appearance of the eruption, commonly puts an end to both fever and eruption; and if the pustules are to be few, the fever generally abates after the first or second paroxysm.

ON the fourth day, reckoning from the first appearance of the pustules, they become more painful and inflamed, in consequence  
of

of which the fever increases, or is again renewed, in proportion to their number, and the irritability of the patient's habit: The face then swells, and suppuration begins, which is completed about the eighth day from the time of the first eruption, on the face, but not on the hands and other parts; because the pustules do not appear on them so early.

THE suppuration of the pustules being finished, they dry and fall off in the same regular order in which they made their appearance; which ought to be particularly remarked. On the twelfth or fourteenth day the patient is commonly quite free from the distemper.

To distinguish the Small Pox from the chicken and every other kind of pox, it is to be observed, that its pustules, when they first appear, are more flat on their tops, and harder to the touch, than those of any other species: and that each pustule, from the time of its eruption to that of its incrustation, takes up the  
space

space of eight days; whereas in the chicken pox the time is shorter, and in the other sorts uncertain: Besides, the pustules which first come out in the Small Pox, do not commonly begin to fill, until the pustules of the body have made their appearance.

## S E C T II.

### *Of the* DISTINCT CRYSTALLINE SMALL POX.

THIS species has for the most part the same febrile symptoms with the former; its periods are nearly similar; and though it is in general deemed more dangerous, yet I have often found it very mild. The pustules have a transparent or crystalline appearance, from which it has its name; and they seldom mature so well as in the benign.

I once saw a remarkable instance of this species of Small Pox, in a gentleman's



man's son, about twelve months old, whom I inoculated. The part on his arm in which I put the infection, had the usual signs; he sickened at the proper time; the symptoms were little more than a frequent and soft pulse, hot skin at nights, drowsiness, a little thirst, and startings in his sleep.—On the fourth day I observed many pustules on different parts, all which contained a pellucid fluid. Some of them on the body were of the shape and size of a small bean, those on the face and limbs were round, but exceeded not the size of small peas; there were no signs of inflammation at the bases of the pustules, and they remained in this state till the third day, when the fluid contained in them changed to a whitish color; after which they began to incrustate, dry and fall off, in the usual manner. After the disease was over, the child remained feeble for some weeks, but recovered at length, by means of cold bathing

bathing, and other strengthening remedies.

THIS sort of Small Pox seldom attacks any but those of delicate habits, or such as are weakened by disease, low diet, or frequent purging; and though in the above case there were no marks of inflammation at the bases of the pustules, yet it is not always so, for I have often observed the bases inflamed, and the matter contained in the pustules to change to a better appearance than those had in the history now given.

### S E C T. III.

#### *Of the* COHERENT SMALL POX.

THE symptoms of this species are more violent than in either of the former species: the pustules appear earlier, and in greater number; many unite and adhere together in different parts of the face and body: suppuration goes on more slowly,

C

and

and the matter is less digested; having for the most part, at first, a crystalline appearance. During the time of suppuration, the fever is commonly very high; and at the period of incrustation, the patient is usually attacked with a fever, called Secondary, of which we shall speak more fully in another place. This fever is not always attended with much danger: the patient is indeed sometimes seized with shivering and cold fits on its approach, especially if he is kept too cool; but these symptoms frequently go off critically by a few loose stools, or a copious discharge of urine, which deposits a white sediment resembling pus.

THERE is commonly a great soreness of the throat and fauces in this species, which is owing to the number of pustules on those parts: hence a ptyalism or spitting is excited in adults; and the patient is often attacked with a cough and defluxion, which harasses him exceedingly, especially  
if



if the season has any tendency to produce catarrhal complaints.

#### S E C T. IV.

##### *Of the WARTY SMALL POX.*

THIS species differs very much from all those we have described.

THE nervous system is here greatly affected; there are but few symptoms of inflammation; the patient is extremely feeble and low spirited, and often attacked with alternate successions of heat and cold; the skin feels dry; the pulse is weak, frequent, and sometimes intermitting; there is also great restlessness and anxiety: and all these symptoms continue to the end of the disease.

THE pustules commonly appear later than usual, and come out more gradually; they are harder than in any of the other species, and of a paler color, resembling warts; they never contain any fluid, but

at the usual time of suppuration grow white and flat: the pulse at this period becomes more quick and unequal, respiration difficult, and tremors arise with faintness, subsultus tendinum, or convulsions, which indicate the speedy dissolution of the patient.

It is happy for mankind that this species seldom occurs. RHAZES, speaking of it, uses the following words, (Chap. xiv.)

“ These pustules, which are white, very  
 “ small, coalescing, hard, warty, and con-  
 “ tain no fluid, are of a bad kind, and  
 “ their badness is in proportion to the de-  
 “ grees of difficulty in their ripening, and  
 “ to the continuance of the symptoms on  
 “ the eruption; but if the symptoms are  
 “ not abated, after the eruption is finished,  
 “ it is a mortal sign.”

I have met with but few instances of this kind of Small Pox in my practice: The last patient I attended was a boy six years of age, of a thin and dry habit, brown hair,

hair, and rough skin; he died on the eighth day, without any swelling of his face or hands.

## S E C T. V.

### *Of the SANGUINEOUS SMALL POX.*

THIS species of the disease is nearly as dangerous as the former. The eruptive fever is sometimes very violent; at other times, we seldom hear the patient complain, till he is attacked with the most alarming symptoms, such as hæmorrhages, syncope, and convulsions: oft times petechiæ appear, even before the eruption of the pustules, which afterwards increase in number, as the disease advances. At the first approach of fever, the pulse is for the most part soft, frequent and feeble; and the patient is affected with all the nervous symptoms, which were enumerated in the former species. In some subjects we find the pulse at this time, strong, full  
and



and frequent, accompanied with delirium towards night. The eruption is commonly very slow, and the pustules flat and pale, sometimes uniting together on the face, as in the *Coherent* kind. They seldom have any marks of inflammation, and never sup-purate, when the disease is violent; but when it is of a milder kind, and proper medicines are administered, the pustules, which were pale and flat, become more florid and prominent, and in due time arrive at proper maturation; the petechiae also disappear, with every other dangerous symptom, and the disease terminates in health. The two following cases will serve to illustrate this sort of Small Pox.

## C A S E I.

WILLIAM JONES, aged ten years, of a spare habit, and dark hair, was seized with the Small Pox, on the 12th of August, 1776.

1776. I was called to see him on the fifth day of his illness, when I perceived his body entirely covered with purple and livid spots, which appeared, as I was informed, on the second day. He had also an hæmoptoe, and diarrhœa; and sometimes voided blood in his stools and urine. The pustules were flat, and of a pale color; some of which cohered on his face: his spirits were exceedingly low, and his pulse small and frequent: his tongue looked brown and parched; and he complained greatly of thirst. I prescribed the following Bolus and Draught for him, though I had little or no hopes of his recovery; and I desired that wine and water, acidulated with spirit of vitriol, should be his common drink.

R. Spec. e bol. fine op. gr. x.

Sang. dracon. pulv. gr. v.

Alum comm. gr. iij.

Syr. bals. q. s. M. ft. bol. sumendus  
quarta quaque hora cum haustu sequent.

R.

R. Decoct. cort. Peruv.  $\mathfrak{z}\text{i}$ ,

Aq. cinnam. fort.

Syr. balsam. aa  $\mathfrak{z}\text{ij}$ . M.

THE next day, I found him better; and the following day, the pustules put on a more promising appearance, all the bloody evacuations ceased, and the petechiæ were less numerous than before, and those which remained changed to a more lively red. These favorable appearances induced me to continue the same treatment, the good effects of which I saw every day more and more; for in a short time, the face and hands began to swell, the pustules grew more inflamed, and at length came to a proper suppuration, whereby the patient happily recovered.

## C A S E II.

JOHN BARRELL, aged 25, of a middle size, dark hair, pale complexion, and spare habit of body, was admitted into —— hospital,



hospital, the 19th of March, 1776, for epileptic fits, which recurred frequently, and became more violent about the full and new moon: He said they were the consequence of a tertian ague, which had continued three weeks, and that on its going off the epilepsy began. He remained in the hospital till the September following, and took various medicines, which afforded him no relief; but his disease rather increased than diminished. On the first of September he was seized with a violent head ach, pain in his back, and fever: his convulsions returned oftener than usual; and between the fits, he felt great tremblings and agitations in his bowels, with a fluttering and uneasiness about the præcordia, which he called inward convulsions.

SEPTEMBER the 2d.—He was ordered a blister to the head.

SEPTEMBER the 3d.—His pulse beat 130 in a minute, was strong and full. In the

D

night

night he was delirious, but grew more calm towards morning, and obtained some little sleep; several pimples now appeared on his face and body, resembling the *Distinct Small Pox*, (which did not however project much above the surface), and many large petechiæ were interspersed in the interstices; he was extremely feeble, and complained greatly of pains in his head and back; his eyes looked heavy and inflamed; he was very thirsty; his tongue dry and brown; and his teeth and gums were covered with a black viscid substance, like clotted blood, which hindered him from speaking distinctly; his skin felt very hot and dry; he was costive, but made urine often, and in small quantities; and he lay mostly on his back.

THE attending physician ordered him the following Draught, to be taken every four hours; and barley water, acidulated with spirit of vitriol, for his common drink.

R,

R. Decoct cort. peruv,  $\bar{3}$  ij.

Elix. vitriol, g. vi.

Syr. de mecon.  $\bar{3}$  ij. M.

SEPTEMBER the 4th—His pulse beat from 130 to 140, was strong and full. He had some returns of his fits in the night, and was again delirious; the pustules were more numerous and elevated on his face and arms, but flat and depressed on the rest of his body (many of them had a black or livid spot in the middle, and others seemed filled with blood); the petechiæ appeared larger and more numerous than before; he complained greatly of heat of urine, which came away involuntarily, and appeared on the sheets of a red color.

THE blister on his head caused some discharge.

SEPTEMBER the 5th.—His pulse was 130, but not so strong and full as the day before. He was delirious in the night, and had two bloody stools; his belly was



hard and swelled ; and he was under a degree of stupor, though when spoke to was able to give incoherent answers ; his skin felt exceedingly hot and dry ; and he lay, as before, constantly on his back.

SEPTEMBER the 6th.—His pulse beat 120, was small, weak and intermitting ; his respiration was frequent and laborious ; and he appeared quite insensible.

ABOUT seven in the evening, he died.

RHAZES in his Prognostics (Ch. xiv.), says “ All pustules are bad, which turn  
“ green, purple or black : but if likewise  
“ a swooning and palpitation of the heart  
“ come on, this is the worst sign of all.”

## S E C T . VI.

### *Of the CONFLUENT SMALL POX.*

THIS species has been considered by many, as totally different from any of the former ; but in reality it is the same, in a different degree of virulence,

THE

THE febrile symptoms are in general more violent; and the pustules make their appearance earlier, unless pains in the stomach, or some other part, retard their coming out. At the beginning of the eruption, the Small Pox seems often of the *Distinct* kind; but the pustules are smaller, more numerous and contiguous than in any of the former species: and if the patient be kept warm, a redness is observable all over the skin, but particularly on the face and arms, on which parts the pustules come out in greater numbers than any where else. When the eruption is almost completed, the eyes close, the face swells, and many of the pustules, which before seemed rather distinct, unite as the inflammation increases, and at the period of suppuration they coalesce so perfectly, that in opening one we may perceive the adjacent pustules discharging their contents through the same aperture, which is the distinguishing characteristic of this species.

THE

THE pustules on the limbs and body begin, shortly after those on the face, to inflame and suppurate, and many of them coalesce and communicate in the same manner. If this coalescence be not general, but only in some parts of the face, arms, hands, &c. and the rest of the pustules should appear distinct, with round regular bases, and of a florid color, containing tolerable well digested matter; and the patient at the same time should enjoy a competent degree of strength, with a soft, full and easy pulse, and free perspiration; then we may form a favorable prognosis.

ABOUT the eleventh day, the pustules on the face begin to form scabs, or incrustate; but as suppuration is slower here, in general, than in the *Distinct* kind, the pustules continue filling on the body and limbs till the fourteenth or fifteenth day, after which they begin to dry and fall off like the former; and about the seventeenth



venteenth or nineteenth day, the patient is generally quite free from the disease.

A ptyalism in adults, and a diarrhæa in children, either accompany, or follow in a day or two, the eruption, and continue till the period of incrustation is over; then both begin to abate, and soon after totally cease. The saliva is at first thin, but gradually becomes thicker, and sometimes it is so viscid as to endanger strangulation.

WHEN the ptyalism is suddenly suppressed, which now and then happens about the eleventh day, very dangerous symptoms often succeed, such as hoarseness, difficulty of breathing and swallowing, thirst, stupor, &c. and if the cause of these complaints be not remedied in the space of two days, the patient generally dies.

THE swelling of the face, hands and feet, is also greater in the *Confluent* than in the *Distinct* kind, forasmuch as the inflammation

inflammation is more violent, and the pustules more numerous.

WHEN incrustation begins, the swelling, inflammation and pain of every part lessen in proportion as it advances; but an excessive itching succeeds, which makes the patient very restless and uneasy. About this period the secondary fever also comes on, which is ever attended with more danger in this sort of Small Pox than in the *Coherent* species: however, it often terminates favorably, when the pustules dry up fast; because the absorption which excited it, of which we shall speak hereafter, then ceases.

THE patient, in this fever is sometimes seized with cold shivering fits, as we have mentioned before, which give it the resemblance of quotidian or tertian, when they return periodically. On the accession of one of these fits, we may observe a paleness and corrugation of the skin, about  
the

the bases of the pustules; many of which become flaccid, or empty.

THE swelling subsides, the pulse grows more frequent, thirst increases, and the mouth and tongue become dry. A hot fit sometimes succeeds, particularly if the patient be well covered in bed, which produces sweat; but most commonly the paroxysm terminates by a diarrhœa, or copious discharge of urine, depositing a sediment resembling pus.

THE great virulence of this kind of Small Pox leaves often a tendency in the constitution to boils, and other inflammatory swellings, which afflict the patient for a long time after.

WE sometimes also observe a second growth of pustules in this kind of Small Pox; which is also observable in the *Distinct*, though not frequently. This takes place a considerable while after the first eruption seemed to be completed; and it is usually preceded by a fresh febrile

E

paroxysm.



paroxysm. These new pustules are commonly later in maturation than those which preceded them.

## S E C T. VII.

*Of the* ERYSIPELATOUS, CRYSTALLINE,  
and SILIQUOSE SMALL POX.

THESE three species differ only in appearance: the eruptive fever is hardly to be distinguished from that of the *Mild Confluent*: the pustules usually appear on the second day, and sometimes on the first; and often without such violent symptoms, as should indicate the danger which commonly follows.

THE pustules are extremely small and numerous, particularly on the face and arms; and never appear so distinct and prominent as in the *Mild Confluent*: they feel only rough and hard in the skin, which has a red color, and shining appearance, like an erysipelas; whence its name.

THE

THE eruption is generally completed sooner than in any other species: though this depends very much on the degree of fever, and the patient's habit. About the time of suppuration, the face swells, the eyes close, thirst increases, and the pulse becomes more frequent. The pustules on the face never rise; but remain flat and closely joined together, so as to form one covering, or pellicle, which soon changes to a yellow color: under this covering we seldom find any suppuration; but only a thin reddish serum exuding from the skin, which becoming gradually of a denser consistence, helps to form a brown or dark incrustation over the whole face, accompanied with an intolerable itching, occasioned by the acrid matter: and if the patient should at this time scratch his face to allay this itching, blood issues forth, which becoming black as it dries, presents a most horrid sight to the spectator. The pustules on the body and limbs mature very

slowly, and assume often very odd and different appearances in different subjects; and the more slow and imperfect the supuration is, the more danger is to be apprehended: but if the pustules look well at their bases, the fever moderate, suppuration tolerably regular, and the patient sleeps well, we may expect a favorable issue of the disease: on the contrary, the case is extremely doubtful, when the pustules form large vesicles or blisters, as they unite, or coalesce, containing a transparent fluid.

THIS appearance made some authors call this species by the name of *CrySTALLINE*; and others call it *SILIQUESE*, when the fluid contained in the pustules, has exhaled, or is absorbed, because in that state they have the appearance of pods.

THE Small Pox is also called *Siliquese*, when the pustules fall into deep round holes, or foul painful ulcers. This species rarely happens: one instance of it only occurred to me in practice; in a child of



a year and a half old at the breast: the pustules were very distinct, and matured well; but when they had dried, and most of the scabs were fallen off, without any apparent cause, in a few days, every place on which a pustule was seated, became a deep round ulcer, which was foul and white at the bottom, and discharged an ichorous matter. In eight or ten days the child died.

THESE different names serve in some measure to illustrate the history of the disease, though they express only the accidental symptoms, and not any true specific difference, as shall be seen hereafter: and indeed, there is such a variety of symptoms observable in different subjects and seasons, that authors not being able to reduce the disease under either of the general heads of *Distinct* or *Confluent*, and not knowing what otherwise to call it, have termed it the Anomalous Small Pox.

WE

WE find sometimes, that the pustules, instead of filling with any kind of fluid, remain dented and sessile, and about the eighth or ninth day, change to a yellow or white color; and many of them adhering together, form broad irregular patches, which, when opened with a lancet, shews nothing but a little unctuous matter, resembling fat. The parts of the body that are commonly covered with these patches, are the outsides of the arms and backs of the hands, the shoulders and hips, the outsides of the thighs and legs, and the upper part of the feet; and still more frequently do we meet with them on the cheeks, lips and forehead, near the root of the hair. When these appear in two or three of the said places, the death of the patient is certain, as RHAZES very justly observes in his Prognostic (Chap. xiv.), saying, “ There is a bad, and even  
 “ fatal sort of white large pustules; to wit,  
 “ those that run together and spread, so  
 “ that

“ that many of them unite, and occupy  
 “ large spaces of the body, or become like  
 “ broad circles, and in color resemble  
 “ fat.”

THERE is also another appearance frequent in this species of Small Pox, which portends great danger, *viz.* while the face is covered with a black unsightly crust, on the limbs there is a great number of distinct, pale and flat pustules, and many small blisters, or vesicles, in their interstices, filled with a clear or yellow serum, which seldom appear before the sixth or eighth day. In all these sorts of Small Pox, if suppuration takes place, the patient is attacked by the secondary fever; but if no suppuration happens, another kind of fever is excited in the system from irritation and inflammation, which destroys life in a very short time.

FROM what we have hitherto said, it will appear evident, that all the divisions we have made of the Small Pox, are for  
 the



the most part taken from the different appearances of the pustules; but it shall be hereafter demonstrated that these appearances are merely accidental symptoms, and indeed they serve so little towards distinguishing the different species of Small Pox, that even sometimes we see them all meet and conspire to destroy the poor, unfortunate patient at the same time.

## S E C T. VIII.

### *Of the NERVOUS SMALL POX.*

IN the eruptive state of this species, we never see those inflammatory symptoms, which we meet with in the other sorts of *Confluent*; but the nervous system is more affected.

THE patient is often seized with cold and hot fits alternately: his spirits are dejected; and he feels a general weakness, and loss of appetite: his pulse is small, weak, and frequent. He does not indeed  
complain

complain much of thirst, pain, or heat; but the other symptoms continue to the end of the disease.

THE time of the eruption is uncertain; and seldom happens before the fifth or sixth day: it goes on slowly; and resembles, in a great measure, the measles, or a rash, but is not attended with so much redness or inflammation; and because the patient does not feel much pain, he is not apprehensive of the danger he is in, till the period of suppuration arrives: it is then the fever increases, and restlessness and inquietude begin. The pustules are always flat and pale on the face and hands, without any inflammation at their bases; and these parts never swell; but appear covered with a crust or pellicle, nearly resembling parchment.

AT this period, the patient is seized with tremors, palpitations, difficulty of breathing, throbbings of the carotids, delirium, &c. which indicate speedy death.

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I have

I have also frequently observed petechiæ and hæmorrhages, at the last scene of the disease; both of which symptoms shew the dissolution of the blood, and the dangerous alteration of the nervous system.

## S E C T. IX.

### *Of the different PERIODS of the SMALL POX FEVER.*

HAVING given a description of the different species of the Small Pox, it is now proper to acquaint the reader, that there are four Stadia, or Periods, to be distinguished in each species.

THE 1<sup>st</sup>. commences with the fever, and continues to the eruption of the pustules. Its length is uncertain in all the species, except the *Benign*; in which it constantly takes up the space of four days: and the more any of the other species have the time of this Stadium shortened,

or



or protracted beyond that term, the greater the danger.

THE 2d Period begins where the first ends, and continues till the eruption is entirely completed. The length of this, as of the first Period, in the *Benign*, is four days; in the other species it is irregular, but commonly longer. The pustules first appear about the lips, nose, chin, roots of the hair and forehead; and a fever commonly attends their coming out, even in the mildest kind of Small Pox, and either totally ceases, or becomes more moderate, until the third Period, which begins in every species about the eighth day from sickening, and is called the Suppurative Stage. It is easily discovered by the increase of fever, heat, thirst, and soreness; which symptoms are more or less grievous, in proportion to the number and quality of the pustules, and the inflammatory diathesis and irritability of the patient's habit. This stage lasts till

the pustules about the lips, nose or chin, begin to dry or incrustate, which in the *Benign* happens about the eleventh day from sickening; but in the *Confluent* it happens much later, the scabbing or incrustation seldom taking place till the fourteenth day.

The 4th Stadium, which is commonly called the Turn of the Pox, but more properly the State of Incrustation or Scabbing, begins where the last terminated, and continues till the pustules become dry in all parts of the body.

IN counting these four Stadia, we are to reckon the last day of each period, as the first of the succeeding one, and to include the day of sickening in the first period, though the fever should not commence, or the pulse become frequent till late in the evening: so that if the patient sickens or becomes in any degree affected with fever, on a Sunday evening, or before 12 o'clock at night, and the eruption appears  
on

on the Wednesday following, we call it the fourth day: and in this manner, I presume, Dr. SYDENHAM is to be understood in his writings on this disease.

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## C H A P. II.

*Containing various REMARKS and OBSERVATIONS tending to ILLUSTRATE the NATURE of the SMALL POX, and to DISCOVER the proper METHOD of treating IT.*

### S E C T. I.

*OBSERVATIONS on the ERUPTIVE FEVER, and an ENQUIRY into the NATURE and QUALITY of the VARIOLOUS INFECTION.*

**T**HIS fever has, in common with all others, an increase of its symptoms towards evening, and a remission towards morning;



morning; which is more remarkable in warm climates than in cold. The pustules generally make their first appearance in the morning; and when the pox is of a favorable kind, a sweat for the most part accompanies their coming out, by which the patient is freed from the troublesome anxiety he felt before.

WRITERS on the Small Pox differ very much in their opinions, concerning the nature of this fever: some think it of the inflammatory kind; others of the putrid.

I shall here offer a few remarks on this subject, chiefly the result of my own observations, in support of the former opinion.

REMARK 1<sup>st</sup>. We find in general, that the eruptive symptoms are similar to those which characterize all inflammatory fevers; such as cold chills, followed by hot fits; a strong, hard, full and frequent pulse; with the usual pathognomonic sign of inflammation, a fizy blood: but in putrid fevers, the pulse is for the most part soft, small

small and weak ; and the blood, of a thin, loose texture.

REMARK 2d. In the eruptive period, the chief secretion of the variolous matter is made by the glands of the skin: on which account the circulation is more considerable on the surface than on the internal parts, and the matter which is not carried off by perspiration, or sweat, is detained under the cuticle, and exerts itself in exciting inflammation, and forming small boils or phlegmons.

REMARK 3d. When the matter in the pustules happens to be absorbed, it does not excite the same disease again in the same person, as the miasmata of putrid fevers are wont to do; but only proves a violent stimulus to the nervous system, as all acrimonious matter, consequent to suppuration, does when absorbed.

REMARK 4th. If the patient should have a wound or ulcer in any part of his body, when he is first attacked with  
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the variolous fever, it becomes more foul and inflamed, discharges a thin sanies, and seldom heals till the disease is terminated: this is a common phenomenon in all inflammatory fevers, but in putrid ones the case is different; for here wounds or ulcers generally become less inflamed, dry up soon, or tend to gangrene.

REMARK 5th. The petechial fever does not seem to increase the violence of the Small Pox; as appears from the following case.

I inoculated in the year 1770, on the 8th of August, a boy of ten years of age. At the time of his sickening, he was seized with a petechial fever, which was then epidemic in the country, and had no crisis till the fourteenth day, which was the usual time of its crisis in that season.

THE pustules were very few, and distinct; suppurated kindly; and disappeared in due time. The wound on his arm, where the infection was introduced, tho' much



much inflamed before sickening, healed sooner than ordinary.

REMARK 6th. The sea scurvy, which is a putrid disease, does not increase the violence of the Small Pox.

DR. SCULTZ mentions two cases of the *Benign Distinct*, happening to persons who were extremely ill of the scurvy, and no bad effects ensued.

FROM these remarks, it is sufficiently evident, that the Variolous Fever is properly of the inflammatory kind, and not of the putrid; and though we often see several symptoms of putridity in the course of the disease, these are by no means to be ascribed to the nature of the fever, but to some other internal or external circumstance attending it, such as a putrid diathesis in the constitution previous to the disease, a bad season, damp residence, &c.—And to corroborate further this opinion, I can affirm from my own observation, as well as that of others, that

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whenever the Small Pox is combined with any inflammatory disorder, or rages in seasons when inflammatory diseases are epidemic, it is attended with greater danger, and more violent symptoms, than at any other time.

## S E C T. II.

### *Of the* SECONDARY FEVER.

WE have seen, in the account given of the *Benign* Small Pox (Ch. I. Sect. I.), that at the time the pustules tend to suppuration, a fever is excited from their inflammation, and the pain and irritation they produce in the system : but as soon as maturation is completed, the fever subsides. In the *Confluent* kind of Small Pox, suppuration is generally more slow and imperfect, which occasions the symptoms of inflammation and irritation to continue longer : and at the same time, another cause of fever is constantly superadded ; to wit, absorption of  
matter

matter or serum from the pustules; which often acts so violently on the system, as to prove fatal.

THE symptoms of absorption taking place, we have already described in the history of the *Confluent* Small Pox; and we need here only observe, that they are entirely similar to those occasioned by the absorption of any other acrid matter into the system, from abscesses, ulcers, &c.

IN general, absorption is known by cold chills, or shiverings; but before these begin, we are often forewarned of their approach, although the patient feels no complaint; from the pulse becoming more frequent and small, the face pale, and the lips and nails of a blue color: all which symptoms denote a great degree of spasm in the capillary vessels, and an impeded circulation. A little before the shiverings begin, the patient complains of cold, thirst, pains in his head and back, and uneasiness about the præcordia. The paroxysm continues for some minutes, and



is usually succeeded by a hot fit, and sometimes sweat.

THE matter exciting this paroxysm in the Small Pox, is not always determined to the surface, but rather to the intestines, or kidneys: for which reason, the patient is usually relieved by a diarrhœa, or increased secretion of urine; and if neither of these happen, he is in the greatest danger. But if the morbid matter be translated to some external part, and form an abscess, it is deemed a favorable circumstance: although a mortification is often the result, which frequently carries off the patient; as RHAZES has observed (Chapter xiv.): “ When, “ towards the end of the Small Pox, “ there is a great perturbation of the “ humors, and the patient is seized with “ a violent pain in the leg, head, or “ any other limb; or the pustules are “ speedily converted into a green or red “ color; and thereupon he grows weaker, “ and

“ and the weakness still increases by the  
 “ quick returns of the pain; and the  
 “ limb contracts various colors; these are  
 “ signs of death: but if nevertheless the  
 “ patient grows stronger, he will recover,  
 “ and that limb will be cured.”

IF the translation, or metastasis, be made to any of the internal parts, it excites inflammation, and produces many fatal effects; especially if it be made to the brain or lungs, for then a phrenitis or a peripneumony is brought on, and may be known by delirium, coma, anxiety, difficulty of breathing, subsultus tendinum, a subsidence of the swelling in the face and hands, a sinking of the pustules, stoppage of the spitting in adults, and diarrhœa in infants.

CONCERNING the shivering or cold fits, it is proper to observe, that they never happen without weakening the patient very much: they usually come on in the evening; and if the patient be kept very cool, they

they return more frequently, and with greater violence. These fits always precede the secondary fever, when such a quantity of the morbid matter is admitted into the blood, as is able to produce a general spasm in the system.

WE should use every effort to prevent the returns of the fits, for the patient is frequently carried off in one or other of them; and during their continuance, the spitting in adults, and diarrhœa in children, cease; but if the fit be not very violent, these discharges return again.

FROM what we have said in the two last paragraphs, it is easy to perceive, that the internal as well as the external surface of the body, is often affected with spasm; and when that happens, all the different secretions are interrupted, particularly those of the salivary and intestinal glands.

BEFORE I put an end to this section, it may not be improper to acquaint the reader,



reader, that the absorption of the variolous matter is greatly promoted, First, by keeping the patient too low in the fourth stadium of the disease. Secondly, by the patient's suffering himself to be overcome by any gloomy passions; such as fear, grief, despondency, &c. Thirdly, by exposing him too freely to the cold air: though this, I know, is objected to by many otherwise able practitioners, who recommend a very cool treatment in every stage of the disease; but experience has taught me that this practice is dangerous. Fourthly, by the incrustation of the pustules; for the matter contained in them, being hindered from exhaling, by the hardness, thickness and pressure of the scabby coverings, is repelled into the habit, and the inflammation and tension then abating, the vessels of the surface become more flaccid and relaxed, consequently more incapable of hindering absorption.

S E C T.

## S E C T. III.

*Of the SWELLING of the FACE, HANDS,  
and FEET, PTYALISM in ADULTS, and  
DIARRHOEA in CHILDREN.*

A swelling of the face and hands, is common to all the species of the Small Pox, being the consequence of the inflammation necessary for maturing the pustules; it is therefore always proportional to the inflammatory and suppurative diathesis of the patient's habit, and the quality and quantity of the eruption.

The ptyalism in adults, and soreness of the throat, which always accompany one another in this disease, are occasioned by the pustules seated in the fauces: though at certain seasons of the year and states of the weather, especially when inflammatory and erysipelatous anginas and catarrhal complaints are epidemic, these symptoms

toms become more violent, and are attended with greater danger.

THE diarrhœa in infants proceeds commonly from pustules seated in the mucous membrane of the intestines, which are frequently covered with them; as we are well assured from dissections: though several other causes may concur in producing this symptom in children; as the general irritability of their system, particularly of their bowels; and their being more liable to acidities, indigestions, and worms.

MOST writers on the Small Pox, at least those whom I have had any opportunity of consulting, have attributed the ptyalism of adults, and diarrhœa in children, in the *Confluent* Small Pox, to a particular effort of nature to discharge the morbid matter: but this opinion is by no means warranted by experience. I have frequently observed a copious ptyalism, with hoarseness, sore throat, and difficulty of swallowing, accompany a mild *Distinct*

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Small Pox; at the same time, a patient covered with pustules, and these cohering, has had none of these symptoms: an evident proof that they were occasioned not from the degree of violence of the disease, but from the accident of the salivary glands and fauces being more or less affected with pustules.

THE reason of infants being more subject to diarrhœa than adults, and those more subject to ptyalism than the former, is to be attributed to the different states of the system, at the different periods of childhood, and manhood. For the bowels of infants are more irritable than those of adults; upon which account they are so often affected with diarrhœa, to which several causes contribute, not to be found in the adult state; such as teething, affections of the nurse's mind, &c.

HAVING shewn the causes producing ptyalism and diarrhœa in the different states of childhood and manhood, we may  
infer

infer from what has been said, that as these symptoms begin about the time of eruption, and lessen at the time of incrustation or drying, the same changes which are observed on the pustules of the external parts, happen also to the pustules on the fauces or intestines, except ulcers or fresh inflammation in the latter, cause the symptoms to continue longer: and that whenever any alarming symptoms come on between the periods of eruption and incrustation, and the ptyalism or diarrhœa ceases, they are not to be attributed to the abatement of either of the discharges, but to some other unlucky circumstance or state of the system, which is easily affected by sundry causes, and most considerably by the absorption of the morbid matter, which never fails to produce great irritation and spasm, as we have before remarked.

## S E C T. IV.

*Of the CAUSES producing the different SPECIES of the SMALL POX.*

ALL agree that the Small Pox is a contagious disease, the virus of which, like most other contagions, is unknown to us but from its effects, and from those we learn that it is an infection *sui generis*, which never alters its nature in any climate or age, but continuing ever immutable, produces always the same disease in every country and season, different from every other it happens to be joined with, and depending on none.

THE diversity of symptoms which accompany it in different subjects, seem indeed to indicate a specific difference in the virus; but since the introduction of inoculation, we are well assured from incontestable facts, that though the virus be taken from the most malignant species  
of



of the Small Pox, of the *Distinct* or *Confluent* kind, the disease will prove favorable, provided the patient be properly prepared and judiciously treated.

THE different species therefore of Small Pox, which we have enumerated in Ch. I. are not to be considered as if they constituted a different species by a specific difference in the variolous infection; but their difference is entirely owing to accidental symptoms produced by other causes, such as an extraordinary inflammatory diathesis in the habit, a preternatural irritability and sensibility of the nervous system, a morbid quality of the air, alterations of the atmosphere, other diseases affecting the patient at the same time, &c.

WHEN one or more of these causes are conjoined with the Small Pox, at the time it seizes a person in the natural way, without any antecedent preparation, nothing prevents their effects on the system; on the contrary, the body is then more disposed

posed to receive their influence than at any other period: for which reason it is not to be wondered at, that so many strange and alarming symptoms accompany the disease, in different seasons and subjects; such as syncope, convulsions, petechiæ, hæmorrhages, &c. &c. all which are to be considered as symptomatic, and not pathognomonic, signs of the Small Pox; for they all arise from causes very different from the true and genuine nature of the variolous infection.

THIS method of accounting for the different species of the Small Pox may not appear very probable at first view; but whoever reflects a while on the trivial accidents that daily happen to mankind, will not hesitate a moment to think it the most reasonable one that has been hitherto delivered; for how often do we see small scratches or wounds given with the same instrument or weapon to different persons, have very different effects.

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IN one, they heal in a very short time; in another they fester, and continue long painful, producing many disagreeable symptoms, according to the degrees of irritability, &c. of the habit. But among the various causes producing alarming symptoms, there are none so dangerous, when joined with the Small Pox, as those that predispose to or excite inflammation: hence we may form probable presages of the future state of a patient in this disease, from his particular *temperament*; at the same time enquiring into his usual manner of living, with the different alterations of the seasons and state of the weather.

FEW writers have hitherto taken notice of *this*, though the subject is truly interesting; and as I am well convinced of its importance, especially in inoculation, I shall here insert such remarks as I was able to make in the course of my practice, which I presume will not be disagreeable to the reader.



1st. I observed that persons of a fair complexion, white hair, florid look, who are moderately fat, and perspire freely, come generally better off from the Small Pox, than others; and as persons decline from these appearances, the disease generally becomes more or less dangerous: hence, those of a dry spare habit and not inclined to sweat, or of a yellow or swarthy complexion with brown or black hair, are in the greatest danger, and if they should escape with life they are commonly much marked or pitted.

2dly. Persons whose hair of any color, is disposed to curl or crape about the forehead, are in great danger: but if red or black, their danger is greater; especially if the skin be coarse and swarthy.

3dly. Persons that have strong hair and in great quantity, are *ceteris paribus* in greater danger, than those whose hair is thin and weak.

4thly.

4thly. Those persons whose skin is scurfy, or hands affected with œdematous swellings, seldom have a *Distinct* pox.

5thly. Persons of a scrophulous habit, are in no greater danger than others, and generally come off well.

6thly. Persons afflicted with the palsy, ague, dropsy, and rickets, have commonly a favorable Small Pox; and those afflicted with the two former, frequently recover from both.

7thly. If a person should live intemperately, use violent exercise, drink much spirituous liquors, or give any occasion whatsoever to inflammation, before the attack of the Small Pox, the disease will prove more virulent; although the natural habit should be good. On the contrary, if a person be of an indifferent habit, and an unpromising temperament, but live temperately, eat little animal food, and lead a

sober and sedentary life before the disease attacks him, he bids fair for a happy recovery.

8thly. Persons of strong and firm fibres, dense blood, and an irritable habit, which is often known by the color of the hair and skin (mentioned No. 1, 2, 3), are in great danger.

9thly. People whose fibres are lax, blood thin, skin soft, and have a moderate share of irritability, which is commonly the case with those who have fair hair and complexion, come off well.

10thly. Persons laboring under a hectic fever, or a dysentery, when attacked by the Small Pox, commonly die.

FROM these remarks, a young practitioner may in general learn what subjects he ought to choose for inoculation, and what preparations he should premise to it, though some of the remarks often admit of exceptions from idiosyncrasy, and hereditary dispositions, which are for the most part unknown.



## S E C T. V.

*Of the EFFECTS of the SMALL POX on the*  
CONSTITUTION.

## G O O D   E F F E C T S.

1st. IT frequently removes glandular swellings, particularly those of a scrophulous nature. 2d. It sometimes carries off de-fluxions of acrid humors on the eyes and ears, though it might seem rather calculated to promote them. 3d. It often cures rickets, palsies, consumptions, female obstructions, agues and periodical pains of the head; it likewise corrects and strengthens the constitution, especially if the Pox be of the favorable kind.

## B A D   E F F E C T S.

1st. IT frequently leaves a tendency to a phthisis or consumption, particularly if the

lungs suffered before by inflammation. 2d. It sometimes causes asthma. 3d. It often produces boils and swellings of the hands, legs, and other parts, both inflammatory and œdematous, and likewise scald or scabby heads and cutaneous eruptions. 4th. Its most general bad effect is, a soreness or tenderness of the eyes, which often terminates in the loss of sight.

## S E C T. VI.

### P R O G N O S T I C S.

1st. THE younger the patient, the greater is the probability of his recovery.

2d. IF the patient in the first period of the disease be attacked with very violent symptoms, such as great prostration of strength, lowness of spirits, anxiety, weeping and redness of the eyes, great pains in the head and back, a quick, small and oppressed—or a full, frequent and hard pulse, burning

burning heat and dryness in the skin, &c. the pox will be of the *Confluent* kind, or of the most dangerous *Distinct*.

3d. THE more the time of eruption is anticipated or retarded in any of the species beyond that of the *Benign*, which is the standard of the rest, the greater the danger.

4th. If convulsions happen to children about twelve hours before the period of eruption, and do not continue afterwards, the pox will be of the *Distinct* kind: but if they continue beyond that time, the disease will prove fatal, or terminate with a paralysis.

5th. A delirium in this disease is always to be suspected, especially after the eruption of the pustules.

6th. THE more gradual the eruption of the pustules, the more favorable; provided the time for their coming out is not lengthened beyond the usual limits, by diarrhœa, fear, grief, pains, &c.

7th.



7th. IN every period of the Small Pox, a strong and equal pulse, though frequent, is much safer than a weak, quick and irregular one, however the other symptoms may appear.

8th. PALE and clear urine, in any period of the disease, with frequent desire of making it, denotes great danger: and if at the same time there be a beating of the carotid and temporal arteries, it prefigures delirium.

9th. THE *Distinct* Small Pox, though it be in general attended with less danger than the *Confluent*, yet it sometimes proves fatal, from its effects on the lungs, abdominal viscera, brain, and nervous system.

10th. IF suppuration does not take place on or a little after the eighth day from sickening, the patient seldom recovers: and if no suppuration happens when the pustules are numerous, there is no room for hopes.

11th.

11th. THE more the matter contained in the pustules approaches to the quality and consistence of a laudable, well digested pus, which is always of a whitish color, the less the danger.

12th. THE best kind of pustules, are those which have round, regular florid bases. The next to them, are those that are large, yellow, and only cohere. The worst, are *Confluent*, pale, flat, sessile, hard, or have a black spot in their middle, and are not so painful as the former.

13th. PREGNANT women seized with the Small Pox, run great risque, and commonly miscarry.

14th. GENTLE sweats, or a copious discharge of urine with a sediment, in every species of the Small Pox, but particularly in the *Crystalline*, denote a happy termination of the disease.

15th. A sudden suppression of the diarrhœa in children, or ptyalism in adults, indicate great danger.

16th.

16th. If the face does not swell about the eighth day when the pustules are numerous, or if the swelling suddenly subsides about the eleventh day, the patient is in the greatest danger.

17th. " WHEN, in the *Distinct* Small Pox, sweating is promoted by cordials, or a hot regimen, the distances between the pustules on the face, which should appear swollen and inflamed, become pale and flaccid on the eighth day, and the pustules themselves red and prominent; the sweat also, which at first flowed abundantly, disappears all of a sudden; and the sick person grows light-headed, sick, restless, tosses his body various ways, makes little water, and within a few hours dies." SYDENHAM.

18th. " In the natural course of the disease the hands should swell two days after the face, and the feet a little after them;



“ them; if this does not happen, we have  
 “ great reason to dread evil consequences,  
 “ though bad symptoms may not appear  
 “ for some days after.” SYDENHAM.

19th. If in the fourth stadium of the *Confluent* Small Pox, the pustules, which were before pale and flat, should acquire a redness, or a damask rose color, round their bases, and suppuration come on, the patient generally recovers.

20th. WHEN convulsions happen in the *Distinct* Small Pox after incrustation, the patient generally dies: though if he survives, a paralysis of some of the limbs will often be the consequence.

21st. DEEP coma, preceded by violent pains, is dangerous at any period of the disease.

22d. GRINDING of the teeth is commonly a bad symptom; but if it proceed from a disorder in the stomach, worms, or

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happens

happens to children at the time of teething, it is less dangerous.

23d. BLOODY stools, and swellings of the belly, indicate gangrene of the bowels; and if the patient be costive, and the abdomen inflated and tense, sounding like a drum when struck, and he before that has felt great pain and uneasiness, it generally portends the most fatal effects.

24th. THE menstrual discharge, which frequently happens during the disease, tho' the woman be not at her regular period, is not an unfavorable symptom, unless it proceeds from a putrid dissolution of the blood,

C H A P III.

*Of the MANNER of CURING and TREATING  
the SMALL POX in its different STAGES  
and SYMPTOMS.*

S E C T. I.

*The MANNER of CURE in the different  
STAGES.*

S T A G E I.

**I**N the eruptive fever, if the symptoms appear too violent, they ought to be moderated and the eruption retarded, if possible, till its proper season, which we have explained in the *Benign Distinct*; for all variations from the order observed in that species, is commonly attended with



danger. To answer this purpose, bleeding is to be used and repeated according as the violence of the symptoms indicates, afterwards some cooling physic is to be administered, such as salts and manna, infusion of senna with soluble tartar, compound powder of senna, powder of cornachini, small doses of tartar emetic dissolved in spiritus Mindereri, or in a decoction of tamarinds, with cream of tartar; rhubarb and sal polychrest or magnesia: while the patient is taking any of those medicines, he ought not to be kept too warm or confined, but exposed as usual to the open air, unless the weather be too cold.—It is the practice of some, to expose the patient to greater cold than is customary in a state of health, but this I think improper.—His drink should be cold spring water or butter milk, these cool the feverish heat, and prevent the pustules from growing too numerous in the mouth and fauces. But when the patient takes physic, his  
drink

drink should be warm whey or gruel; after the operation of the physic, it will be proper to administer a saline draught every four hours. The acid and sweet spirits of vitriol may be also ordered to advantage at this period, either by the way of a julep, or in the patient's drink. His food at all times ought to be light and cooling, such as barley, roasted apples, panada or flummery, gentle exercise and amusements of the mind are also useful.

## S T A G E 2.

IN the season of eruption, we should use our best endeavors to hinder the pustules from becoming too numerous or too crowded, because much danger and pain accompany this circumstance. To answer this end, the same remedies may be employed which we have recommended in the First Stage, except that bleeding may not perhaps  
be

be necessary here, if it has been practised freely before.

Some think that the exposing of patients to cold air, and using a cooling regimen, is prejudicial in this stage; because, say they, it throws the disorder back upon the vital parts; but this is a wrong notion, for when the fever runs high, and the pustules appear flat, or depressed under the skin, bleeding and a cool regimen remove the spasm from the surface, which is the chief cause of this appearance.

### S T A G E 3.

In this stadium the greatest attention is to be paid to the fever, because it often increases to a very great height, we ought not nevertheless to reduce it too much, lest nature should prove too weak for the work of maturing the pustules. Bleeding therefore and purging are to be used with  
more



more caution here, than in the two former stages, unless very urgent symptoms indicate their use; and the reason is obvious, for nature in the beginning of the disease is commonly too hasty or precipitate in her endeavors to throw out the morbid matter on the surface, and therefore bleeding, purging, and a cooling regimen, are prescribed to restrain the violence of her unreasonable exertions, which if they were suffered to go on, would produce evils which could not afterwards be removed by the most skilful treatment; but in this stage, nature is supposed to have completed the secretion of the variolous matter, and is only busy in bringing it to a proper state, to fit it for expulsion. We ought therefore now to proceed hand in hand with her; and endeavor to help her in this laudable work. The patient therefore in this stage of the disease should be confined for the most part to his bed, but not covered with more clothes

clothes than usual, or than he finds agreeable; care, however, should be taken to keep his hands and arms covered, if the weather be cold, that the pustules may mature the sooner; his linen should be changed every day; his bed often made; the windows and door of the chamber frequently opened, to let in a supply of fresh air; and his arms and legs fomented or bathed every evening in warm milk and water, or bran and water. His body should be kept open by mild clysters, or purges, such as lenitive electary, rhubarb or the like. The bark should be also given in substance or decoction, to promote the supuration of the pustules, and saline draughts if the fever runs too high. The patient's constant drink may be new milk, either alone or diluted with water, or ptisan. Gentle opiates ought to be administered from time to time at this season, to procure rest and ease pain.

## S T A G E 4.

At this period we commonly find the patient in greater danger than in any other, on account of his weakness, and the absorption of the variolous matter, which never fails of producing a very dangerous sort of fever, commonly called secondary, attended with very alarming symptoms. We should therefore at this time, watch attentively every change, endeavor to support nature, and prevent the return of the morbid matter into the blood; and if any has been already introduced therein, to discharge it through the several outlets, which nature has appointed for that purpose.

To answer these ends, we should increase the doses of the bark, unless delirium or difficulty of breathing forbid its use; and prescribe diuretics, such as syrup or oxymel of squills, sweet spirit of nitre, &c. and opening medicines, if the body be costive.

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If the patient be too low, or attacked with fainting fits, or the pustules and swelling in his hands and feet subside, then wine and cordials are to be prescribed. Blisters also to his legs or arms, or sinapisms to the soles of the feet, composed of garlic, mustard, and horse-radish, are likely to prove useful. The patient's face at this time should be kept covered and fomented with warm milk, and anointed with fresh butter, hog's lard, or sweet oil, to prevent pitting.

When the pock is dry, we should give the patient a few doses of gentle physic at proper intervals, such as glauher's salts and manna, infusion of senna, &c. to carry off the remains of the disease.

If the patient appears very weak, or shews a tendency to consumption, he should be put under a milk diet, drink afs's or mare's milk morning and evening. Jesuit's bark, change of air, gentle exercise of the body and amusements of the mind, will be also necessary to restore nature to its pristine vigor.

S E C T.



keep the patient moderately warm and quiet, in order to promote perspiration and facilitate the eruption. Bleeding I would by no means recommend in this case.

#### NAUSEA *and* VOMITING.

THESE complaints are the common attendants of the eruption, and seem to indicate the necessity of an emetic, but as they arise rather from irritation than from a fault in the stomach, a vomit will seldom prove so useful as a purgative; but before this is given, mint or cinnamon tea, or the saline mixture, with a few drops of liquid laudanum ought to be premised to strengthen the stomach. If the symptoms should not cease by these means, it would be advisable to give the patient some chamæmel tea by way of a puke: a stronger vomit I think rather hazardous in this stadium, least it protrude the pustules too early; which, as I before remarked, is commonly accounted dangerous: but if the pustules be backward  
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## S E C T. II.

*The MANNER of CURE in the particular*  
SYMPTOMS.

## C O N V U L S I O N S.

IF convulsions precede the eruption of the Small Pox, and cease on the appearance of the pustules, they are not to be accounted an unfavorable symptom, but if they continue afterwards, the disease is likely to prove fatal. The best manner of removing convulsions, which precede the Small Pox, is, to bathe the patient's feet in warm bran and water, and to give him a dose of liquid laudanum or diacodium, proportioned to his age and strength.

THE tincture of castor, assafoetida or saffron are also useful. Blisters are likewise recommended, especially if the fits continue long; but above all, it will be proper to

in coming out, an emetic may then be administered with safety.

THE following purging infusion is one of the best that can be given at the time of eruption.

TAKE tamarinds and flake manna, of each one ounce;

Cream of tartar, two drams;

Tartar emetic, four or six grains;

Boiling water, one pint; let all stand till cold, and pour off the clear infusion, of which, one or two table spoonfuls may be taken every four hours till it operates, and may be repeated occasionally.

*Fixed PAINS in the HEAD, STOMACH, and other Parts.*

THESE are frequent in the period of eruption, and the best remedies are to bathe the feet in warm water, and apply anodyne fomentations to the affected parts, made with poppy heads and chamæmel and elder flowers,



flowers, &c. If the pains be very violent, bleeding and opiates will be likewise necessary.

### PETECHIÆ, BLOODY URINE *and* STOOLS.

When these symptoms happen, the patient is in great danger. The petechiæ indicate the use of mineral acids and the bark: purgatives are also proper, such as rhubarb, manna or magnesia. Bleeding is to be avoided, and the patient's strength supported by wine and cordials.

When blood appears in the urine, we are to pursue the same method; unless it proceed from blisters applied before hand: in this case, nitre and gum arabic, dissolved in barley water, remove the complaint.

Bloody stools are the worst symptoms of all, particularly if they are not attended with pain, because they then shew a putrid or dissolved state of the humors; but if pain accompany them, they rather indicate inflammation

flammation or dyfentery. If petechiæ be joined with this fymptom, the flux ought to be checked as foon as poffible, and the putrid diathefis corrected by antifeptics. If pain and inflammation accompany it without petechiæ, it fhews that the morbific matter is falling on the intefines, which we fhould endeavor to remove by lenient methods, fuch as a bolus of ten or fifteen grains of rhubarb, and a fcruple or half a dram of diafcordium, which may be given every night, and two table fpoonfuls of the following mixture every fix hours.

TAKE of diafcordium, half an ounce;

Crabs eyes or chalk prepared, two drams;

Mint water, fix ounces;

Strong cinnamon water; and fyrup of faffron, each one ounce; mix.

IF the flux of blood proceed from a dyfentery, which frequently happens when the difeafe is epidemic; then it will be proper to give the patient from five to fifteen grains of ipecacuanha, as an emetic; and  
afterwards

afterwards to check the disease gradually, by smaller doses of the same, and opium mixed.

*Diarrhæa in INFANTS, and Salivation in ADULTS.*

THESE evacuations commonly attend the worst species of Small Pox, and the suppression of them is generally thought to be of evil consequence; for which reason we should endeavor rather to promote than lessen them, unless they prove too violent.

IN infants we may increase the diarrhæa by magnesia, manna, or rhubarb, and check it by absorbents, or the astringent mixture mentioned in the preceding page. The salivation in adults may be promoted by gargling the mouth often with tincture, or honey of roses, and barley water, which may be used almost from the beginning to the end of the disease. If the saliva on the decline of the pox should become very ropy and thick, as it frequently does in the confluent



fluent species, a gargle of a more stimulating nature should be ordered, such as a decoction of mustard seed, horse radish, or pellitory of Spain, with oxymel of squills or vinegar.

SOMETIMES the saliva is so viscid and thick, that it threatens suffocation; in that case, an emetic of ipecacuanha, antimonial wine, or oxymel of squills should be prescribed; and the steams also of vinegar, received into the mouth and fauces, contribute very much towards the discharge of the ropy matter.

#### GRIPING PAINS *in the* BOWELS.

THIS symptom may arise from inflammation, hardened feces, acrid humors or worms. If it proceeds from inflammation, and the patient be costive, bleeding, opening clysters, fomentations, semicupium, gentle laxative, and anodyne medicines are chiefly indicated, such as salts and manna

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in small doses, with some drops of liquid laudanum: after the operation of the physic, we are to rely principally on opiates.

If the griping proceeds from hardened fæces without inflammation, which frequently happens when purging has been omitted in the beginning of the disease, then a clyster may be administered, and afterwards a little rhubarb, lenitive electary, infusion of senna, or the purging infusion. This treatment will also serve to remove pains which arise from sharp humors.

If worms should be the cause, the following powder is frequently found very effectual.

Take of the powder of senna;

—— Aleppo scammony;

—— amber, of each equal

parts; mix them well, by rubbing in a marble mortar, and give from ten grains to half a dram for a dose, which may be repeated occasionally. If a milder medicine be required,

quired, give the infusion of tanfy, or the powder of tin, -with clarified honey.

### DELIRIUM.

THIS symptom may come on in all the stages of the disease; when it happens in the eruptive fever, it is to be removed by bleeding, purging, cool air, and saline draughts.

IN the height of the disease, pediluvium, clysters and laxatives are most proper, with anodyne medicines. In the decline, and if the swellings of the limbs and face should suddenly subside, blisters are to be applied.

Sometimes the hard incrustations, formed on the head, may cause delirium, by confining the acrid matter; in this case, breaking the incrustations and letting the matter out, removes the complaint in general; but if it should prove obstinate, the hair must be cut off, and a poultice of bread and milk applied to the scabs or incrustations, which



will soon remove the delirium, by promoting a discharge of the matter.

### DIFFICULTY *of* BREATHING.

I often observed this symptom, which is truly alarming, in the height of the disease, or in the period of incrustation. It is chiefly owing to the variolous matter falling on the lungs, where it produces a peripneumony, the symptoms of which are a dry and frequent cough, anxiety, oppression, increase of fever, restlessness, and the symptom here taken notice of. The method of cure consists in bleeding, bathing the legs and feet, and blisters. If the expectoration be free, bleeding is to be avoided. If pains are felt in the breast, a blister is to be applied immediately thereto; linctus's and expectorating medicines, made up of squills, sperma-ceti, &c. are the principal internal remedies: but above all, Kermes' mineral, given from one to eight grains, in a bolus, with conserve  
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of roses, and repeated every four or six hours, I found most effectual—this has a very powerful effect, both in forwarding expectoration and clearing the intestines from their foulness, which is sometimes the sole cause of the shortness of breath, as I have experienced in many cases.

#### SUPPRESSION *of* URINE.

WE see this symptom frequently in children, especially if they have taken too great a quantity of opiates: it may be removed by a few drops of the sweet spirit of nitre, or ten grains of sal prunell, taken every two or three hours, in an infusion of marshmallows and parsley roots. To make this medicine operate more freely, the child ought to be often put in a proper posture for making water, or made to walk about; if the complaint proves very obstinate, a warm bath and clysters of emollient herbs, with glauber's salts, are to be used.

BOILS

**BOILS and INFLAMMATORY SWELLINGS.**

THESE are the consequences of a bad Small Pox, or of a good one ill treated. The manner of curing them, is, to apply a poultice of bread and milk, linseed meal, or roasted onions to the part affected, and endeavor thereby to bring the abscesses or swellings to suppuration. When they are ripe, the poultice should be continued till they break of themselves, especially if they be seated in a glandular part; for opening them with a caustic or lancet in those parts, rather retards their cure, and renders it more difficult. When they suppurate, a little digestive ointment is to be applied to the sore, spread upon lint, and over it a fresh poultice of bread and milk, and renewed twice every day; which treatment is to be continued till the cure is made perfect.



C H A P    I V .  
*Of* I N O C U L A T I O N .

I HAVE treated so amply of the natural Small Pox in the preceding part of this work, that little remains to be said on the present subject (being only an artificial way of conveying the same disease), except shewing the age, season, temperament and preparation, proper for inoculation, and the manner of collecting and preserving the virus, and inserting it in the patient's arm. The mode of treating the disease after the infection is introduced into the habit, differs very little from what has been said on that head in the natural Small Pox; however, I shall make a particular section of it, that the readers may not be at the trouble of consulting other authors.

S E C T .

## S E C T. I.

*Of the AGE, SEASON, TEMPERAMENT, and  
PREPARATION proper for INOCULATION:*

## A G E.

WE may inoculate at any age with safety from five to six weeks after birth, till a person is fifty years old or upwards, provided the constitution be good and not affected with any disease. In the time of dentition, if a diarrhœa, or any alarming symptom accompany it, inoculation should be deferred till the interval between the breeding of one sort of teeth and another; i. e. the operation should be performed in the space of time, which intervenes between the appearance of the incisores and canini, or of the canini and molares.

The nurse's health ought to be particularly enquired into, and her mind kept quiet, composed and serene, least passions  
of

of any kind disturb her milk, and disorder the child at so critical a period. The greatest difficulty that occurs in the inoculation of infants, is, to make them take the infection; but to obviate this difficulty, I frequently wait till some rash or eruption appears in some part of the infant's body, after which, I am always sure that the infection will take place,

#### S E A S O N,

As to the season, if we be at liberty to choose one, the spring seems to be the most proper. Any season nevertheless will serve, provided it be not too hot or too cold. In this country, where the air is in all seasons temperate, I never perceived any danger or inconveniency arise from cold or hot weather, except that the patient has a few more pustules in the hot than in the cold months, and is less subject to irregular symptoms in moist, than in very dry weather. But as

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these



these are matters of small concern, it is scarcely worth while to postpone inoculation on their account; however, if other disorders should happen to be rife in the neighbourhood in hot weather, or in any other season, I would by all means counsel the practitioner to defer inoculation, till either the diseases subside, or the weather becomes mild.

#### TEMPERAMENT.

CONCERNING temperaments, the reader may consult chap. II. sect. IV. where more has been said on that head, than is usually met with elsewhere; and each temperament is described from my own observations.

#### PREPARATION.

THE preparation ought to be very simple, and to consist only of a vegetable and milk diet for a few days before the infection is  
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communicated. If the patient happens to be of a gross or costive habit, he ought to take a dose of cooling physic, and continue the aforesaid regimen longer. Some recommend mercurials to prepare the habit for the infection, but I entirely disapprove of them, having in my early practice discovered many evils, which they are apt to occasion: for in the first place, they produce more pustules in the patient, than he would otherwise have had, and they are the sole cause of the *Rash*, which frequently occurs before the eruption comes on, as repeated trials have convinced me, when I employed and omitted them in preparing subjects of similar habits and temperaments for inoculation.

Nor is it to be wondered at, that they should produce those effects, since, in the generally-received opinion of authors, they naturally dispose the habit to inflammation, and increase its putrid and suppurative diathesis. They also render the body more

susceptible of cold; for which reason, a warm regimen is universally recommended wherever they are employed. How opposite therefore to common sense do these practitioners act, who advise mercurials in inoculation, and at the same time strenuously contend for a cool regimen!

## S E C T. II.

*The MANNER of COLLECTING, PRESERVING, and INSERTING the VIRUS.*

MANY practitioners maintain, that the virus of the Small Pox has no more malignancy in one species than in another, nor in a bad constitution than a good one, consequently that it may be taken from any subject indiscriminately; but prudence and good sense should direct us to take the infection from the most distinct species of Pox, and from the most healthy constitution,  
let



let our opinion otherwise be what it may, in order to secure our reputation from censure, and the patient from even a possibility of being hurt by our practice.

MANNER of COLLECTING and PRESERVING  
*the* VIRUS.

THE manner of collecting the virus is this. When the pustules are full and ripe, open those that are most prominent and distinct with a lancet or toothpick, and take out the matter and drop it upon a piece of window glass; when enough is collected, expose it to the sun or air till it is dry, afterwards inclose it upon the glass in a small box or case fit for the pocket.

I have formerly preserved the virus in a little copper globe, designed originally for a watch trinket, which in three or four days time changed to a green color, and lost entirely the power of communicating the disease

ease, and exciting the usual inflammation in the arm. Quere, therefore, may not some of the preparations of copper prove a specific in the Small Pox? Some practitioners recommend the collecting of the virus before the pustules are ripe; because, say they, it produces less inflammation in the place it is inserted: but this is not sufficiently demonstrated to alter the method established. It ought however to be remarked, that when the infection is to be communicated immediately after the lancet has opened the pustule, it is better to take it from an unripe one where the matter is thin, than from one that is ripe.

#### INSERTION.

1. PREPARE a lancet, by dipping it in water, and moistening the dried matter on the glass therewith, till it return to its original fluidity and consistence. 2. Take the arm of the patient in the left hand, a  
little

little above the elbow, stretching or tightening the skin on the outside in the most fleshy part with the fore finger and thumb.

3. Hold the prepared lancet in the right hand as in bleeding, and resting the ring and little fingers thereof on those of the left hand, then introduce its point obliquely under the scarf skin, gently moving it up and down to deposit the virus there with the greater certainty, and press the lancet in withdrawing it from the orifice with the thumb of the left hand, to detain the infection, least any part of it should be lost.

I have directed the lancet to be introduced under the scarf skin; because, whenever it passes deeper, I frequently observed boils and abscesses to arise in the axilla or upon the arm, which prove very troublesome and painful to the patient. I have also mentioned only one place for the insertion of the virus, and that a little above the elbow, because I observed one place of insertion to be always sufficient; and when  
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the virus is inserted where issues are commonly put, as some authors recommend, the sore is usually worse, sinks deeper, and is more apt to produce abscesses under the arm.

### S E C T. III.

#### T R E A T M E N T.

WHEN the infection is introduced, no dressing is necessary, until the eruptive fever comes on. The progress of the infection is as follows. 1. A little inflammation, redness and swelling, with an itching, is perceived in the spot where the lancet entered, followed sometimes with a tumidity of the axillary gland, and a stiffness of the neck and shoulder on the same side; which symptoms continue for a few days, until a small pustule arises, which soon breaks and forms a scab. A little before the time  
of

of sickening, which happens sooner or later, according to the patient's temperament, a small callous white circle makes its appearance round the place where the virus was inserted; about which, the skin is inflamed and besprinkled with several small pimples.

At the period in which the pustules on the face and arms ought to appear, according to the natural course of the disease, which is generally the third day after sickening, the aforesaid circle seems greatly enlarged, and a small deep hole is formed in its centre, containing a thin sanies or matter, which as effectually communicates the disease, as that which is taken from a pustule in its greatest state of ripeness. At this time, dressing is indicated, which ought to consist of nothing but a little dry lint, unless the inflammation be great, in which case, a poultice of bread and milk will be proper; plasters and oily applications are found to be injurious. If the axillary gland

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should

should happen to swell, the above poultice, early applied, may prevent an abscess. Here it ought to be observed, that the description given of the progress of the infection, is not to be considered as constant or invariable, for we often see the above appearances change in different temperaments.

Having shewn how the arm is to be treated, it is necessary now to speak of the internal treatment. The day after the infection is introduced, it is proper to give the patient a dose of physic, and to repeat the same on the third and seventh day, unless a looseness, or the delicacy of the patient's habit forbid the repetition; indeed I seldom omit ordering physic on the seventh day, because I find it useful in bringing on the eruptive fever, which is usually expected on the eighth or ninth day, and if it come on later, the disease is commonly attended with more severe symptoms. The physic I order for infants, till they are two years



years old, is magnesia in such a quantity as may procure two or three stools a day, and if it should not answer the end, I join thereto a little manna or rhubarb. For children from two years to twelve, I prescribe the compound powder of senna, from five grains to two scruples. Persons of riper years may take the infusion of senna, salts and manna, &c.

The patient's diet should consist of milk and vegetables, sago, gruel, panada, rice, barley, fruit pies, bread pudding, roasted apples, &c. His drink, small beer, wine and water, cyder, or lemonade. All animal food should be avoided, except by persons of delicate habits, who may be permitted to eat a little veal, rabbit or chicken from time to time. A child on the breast requires no particular regimen: but the nurse should observe the aforesaid rules for some time before the child is inoculated; and if she be of a full habit of body, she ought to take a dose of physic, when she begins

the regimen, and about two scruples of nitre every day after, to cool her blood.

As to what regards the treatment of patients in the particular stages and symptoms of the disease, enough has been said in chap. III. sect. I. p. 65—7, which the reader is desired to consult; for the inoculated Small Pox differs from the natural only in this, that the former is in general more mild, but by bad management, improper habits, abuse of the non-naturals, neglect, &c. it may be rendered as virulent as the latter.

Before I conclude this section, which terminates the work, I shall add a few remarks, which a practitioner will often find very useful.

Remark 1. After the infection is introduced into the patient's arm, the sooner a hardness, prominency, and redness appear about the part, the greater hopes we are to entertain of a happy termination of the disease, provided these symptoms increase gradually

gradually till the time of sickening and *vice versa*. This remark is chiefly verified in bad temperaments; but in good ones I have observed the above symptoms go off entirely and not return till the twelfth or fourteenth day; and in one in particular they did not return till the twentieth day. Some instances occurred where they never returned; and yet the patients did well, and the pox proved favorable.

Remark 2. If the signs of infection mentioned in chap. IV. sect. III. be perceived in the patient's arm, with ever so small a degree of fever, we may rest assured that inoculation has taken place, although a single pustule should not appear in any other part of his body; and consequently that he is as secure in future from the Small Pox, as if he had a copious eruption.

Remark 3. Although cold air be strongly recommended in the Small Pox, both in this treatise and in the writings of others; yet it is by no means advisable to expose  
patients



patients to very intense cold for a long space of time; especially subjects of a delicate habit, who never endured much cold before, because by such inconsiderate treatment, other dangerous diseases may be produced. The first of our countrymen who recommended the cool regimen in the Small Pox, was the celebrated Doctor Sydenham, as appears by his own writings, and from Doctor Dover, who thus speaks of the manner in which he himself was treated by that great physician in the Small Pox. “ Whilst  
 “ I lived with Dr. Sydenham, I had myself  
 “ the Small Pox, and fell ill on twelfth day.  
 “ In the beginning I lost twenty-two ounces  
 “ of blood. He gave me a vomit, but I  
 “ find by experience purging much better.  
 “ I went abroad by his direction till I was  
 “ blind, and then took to my bed. I had  
 “ no fire allowed in my room, my windows  
 “ were constantly open, my bed clothes  
 “ were ordered to be laid no higher than  
 “ my waist. He made me take twelve  
 “ bottles

“ bottles of small beer acidulated with  
 “ spirit of vitriol every twenty-four hours.  
 “ I had of this anomalous kind to a very  
 “ great degree, yet never lost my senses one  
 “ moment.” And adds, “ This method will  
 “ serve very well in the *Confluent* sort.  
 “ This you may follow in the *Distinct* Small  
 “ Pox, but in a more remiss degree.”

Remark 4. As the symptoms of inoculation are often extremely mild and sometimes vanish in a few days, it is proper to advertise the reader, that the virus of the Small Pox is not entirely subdued in the constitution, till twelve days after sickening, as it happens in the natural *Distinct* Small Pox; consequently the patient's regimen should not be altered, nor physic given him by way of carrying off the remains of the disease, till after that period.

F I N I S.

bottles of small beer acidulated with  
 a pint of vinegar every twenty-four hours.  
 I find of this anodyne kind to a very  
 great degree, but never lost my senses one  
 moment. And now, with the method will  
 be very well in the Congress for  
 the you may follow in the light of small  
 "For, but in a more remote degree."  
 Remarks: For the symptoms of insen-  
 sibility are often extremely mild and some-  
 times vanish in a few days, it is proper to  
 observe the reason, that the virus of the  
 Small Pox is not entirely expelled in the  
 constitution. The virus does not always  
 as it happens in the case of the Small  
 Pox; could not the patient's regimen  
 should not be altered, nor should you him  
 by way of curing of the virus of the  
 disease, till after this period.



